

Amendments to the Specification

On page 5 of the specification, line 5, add the following paragraphs:

Fig. 3 is also a schematic front view of the device of Fig. 2, with the pivoting part rotated 90 degrees.

Fig. 4 is a schematic side view taken along line 4-4 of Fig. 3.

Fig. 5 is the schematic view of Fig. 4 with the pivoting part rotated 90 degrees.

On page 5 of the specification, delete lines 6-16 and substitute the following paragraphs:

Fig. ~~[[3]]~~ 6 in a perspective view, a pivoting part for the device for checking and rotating semiconductor chips according to an embodiment of the invention;

Fig. ~~[[4]]~~ 7 in a schematic side view, the pivoting part shown in Fig. ~~[[3]]~~ 6;

Fig. ~~[[5]]~~ 8 in a schematic front view, a representation of the principle of the method according to the invention; and

Fig. ~~[[6]]~~ 9 in a schematic representation, checking areas for a through opening rotated to the left and to the right within the pivoting part.

On page 6 of the specification, delete the paragraph beginning at line 5 and substitute the following paragraph:

In Fig. 2, a device for checking and rotating semiconductor chips according to an embodiment of the present invention is shown in a schematic front view. It can be seen in this representation that

above a wafer and an associated substrate 11 with a wafer surface 11a, from which individual semiconductor chips are ejected with a die ejector 12 from below upwards, a pivoting part 14 is arranged in such a way that it rotates in an executed rotation as indicated by arrows 15, 16 about a pivotal point 17, which is arranged above the chip to be picked up. The wafer can be moved with the substrate 11 in the x or y direction, as is indicated by the double arrow 13.

On page 6 of the specification, delete the paragraph beginning at line 23 and substitute the following paragraph:

At almost the same time the pivoting part 14 rotates about ~~[[is]]~~ its pivotal point 17 – this time in the opposite direction to the preceding rotation - and after a 90° rotation a through opening not shown here arranged in the pivoting part 14 generates a sight channel 23a from a first optical facility 23 running vertically through the part 14 to the surface 11a of the substrate 11 covered with the wafer to a further semiconductor chip.

On page 7 of the specification, line 13, add the following paragraphs:

Fig. 3 shows the device of Fig. 2, where the pivoting part 14 is rotated 90 degrees. At this point, the placing facility 21 is moved (with a semiconductor chip) to a position over the indexer 26 and out of the optical path 23a. The optical path 23a is now unobstructed as it passes between the projections 18a, 18b of the pivoting part 14 to the surface of the substrate 11a.

Fig. 4 is a side view of the device shown in Fig. 3. The pivoting part 14 is shown connected to the axis of the pivoting point 17 which is driven by motor 40 to rotate the pivoting part 14. It can be seen in Fig. 4 that the optical path 23a passes in front of the pivoting part 14 between the projections 18a, 18b, so that the camera may view the surface of the substrate 11a.

Fig. 5 is the same view as in Fig. 4, except that the pivoting part 14 is rotated another 90 degrees. At the same time, placing facility 21 is returned to a position to pick up a semiconductor chip from the pickup element 19, thereby again blocking the optical path 23a.

On page 7 of the specification, delete the paragraph beginning at line 14 and substitute the following paragraph:

Fig. ~~[[3]]~~ 6 shows in a perspective view a possible embodiment of a pivoting part 14 for its arrangement in a device according to the invention for checking and rotating electronic components. As can be seen from the representation, the pivoting part is equipped at ~~[[is]]~~ its pivotal point 17 with a hole to accommodate a rotational axis, not shown here, around which the pivoting part 14 rotates.

Delete the paragraphs beginning on page 7 of the specification, at line 27, through page 8, line 23, and substitute the following paragraphs:

As can be seen from a side view of the pivoting part in Fig. ~~[[4]]~~ 7, during its rotation around a rotational axis arranged in a drilled hole 29 the part 14 permits a maximum inspection window of a distance between the projections 18a and 18b. This distance can have a dimension of about 20 mm, for example. In a further rotation beyond the 90° setting of the pivoting part 14, the inspection window then shrinks again, and vanishes entirely at a 180° setting of the pivoting part 14.

~~Fig. 5~~ Fig. 8 shows in a simple schematic front view the functioning of the device according to the invention. The pivoting part, not shown here in detail, which is arranged between the camera 23 and the substrate 11, contains among other features the through opening 28, which moves in a circuit 15a.

As soon as the through opening 28 is in a vertical position, meaning that the pickup elements not shown here are aligned horizontally, the optical connection line 23a can be set up from the camera 23 to the semiconductor chip to be removed on the substrate 11. Within this brief swivelling in of the through opening 28 into the optical connection line 23a, a short-time recording takes place of the surface and the position of the semiconductor chip to be removed. A further rotation of the part in a counter-clockwise direction, as indicated by the arrow 15, allows the pickup element not shown here to sweep to the chip to be removed and pick it up. A 180° rotation of the part then takes place in the opposite direction, i.e. clockwise as indicated by the arrow 16. Alternatively, the pivoting part may complete a 360° rotation rather than reciprocating.

In Fig. [[6]] 9 there is a schematic representation of the observation/inspection areas that are available to the camera 23 during a rotation of the part 14 developed with the through opening 28. For a total 360° rotation of the part and the through opening counter-clockwise (reference label 31) and clockwise (reference label 32), as also indicated by arrows 33 and 34, available inspection areas 35 and 36 are formed at an approximate 90° setting of the part.

On page 11 of the specification, insert the following paragraphs beginning at line 3:

39 Semiconductor chip

40 Motor